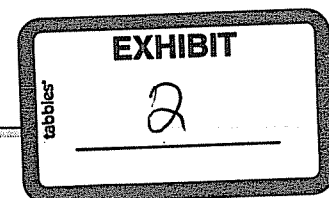


IN THE UNITED STATES DISTRICT COURT FOR THE
NORTHERN DISTRICT OF OKLAHOMA

W. A. DREW EDMONDSON, in his)
capacity as ATTORNEY GENERAL)
OF THE STATE OF OKLAHOMA and)
OKLAHOMA SECRETARY OF THE)
ENVIRONMENT C. MILES TOLBERT,)
in his capacity as the)
TRUSTEE FOR NATURAL RESOURCES)
FOR THE STATE OF OKLAHOMA,)
Plaintiff,)
vs.) 4:05-CV-00329-TCK-SAJ
TYSON FOODS, INC., et al,)
Defendants.)

THE VIDEOTAPED DEPOSITION OF
ROBERT LAWRENCE, MD, produced as a witness on
behalf of the Defendants in the above styled and
numbered cause, taken on the 28th day of January,
2008, in the City of Tulsa, County of Tulsa, State
of Oklahoma, before me, Lisa A. Steinmeyer, a
Certified Shorthand Reporter, duly certified under
and by virtue of the laws of the State of Oklahoma.

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1 distinguish between risk and outcome, particularly
2 in infectious diseases where many people will
3 experience some stomach cramps and diarrheal disease
4 or nausea and vomiting. It's very transient, and
5 they'll attribute it to the egg salad sandwich they
6 ate the night before rather than to having been
7 swimming in the Illinois River three days before.

09:29AM

8 Though I would not be surprised, despite the very
9 real and imminent threat to the health of the public
10 of exposure in contaminated water, that the causal
11 pathway has not yet been established. It would take
12 a large epidemiologic study, a clinical trial if you
13 will, to make the kind of determination that you're
14 asking for.

09:29AM

15 Q And to your knowledge, that's never been done,
16 has it?

09:29AM

17 A It has been done in other places.

18 Q In the IRW?

19 A Not in the IRW.

20 Q And, Doctor, would you agree with me that
21 people have been drinking water directly out of the
22 ground in the IRW since at least statehood, which in
23 Oklahoma's case is 1907?

09:29AM

24 A And repeat your question, please.

25 Q That human beings have been drinking water

09:30AM

1 documents on the first page which deal -- on which
2 you relied and which deal with this issue of
3 resistant bacteria?

4 A 184141, Arsenic Resistance in Campylobacter
5 Species Isolated From Retail Poultry Products.

01:33PM

6 Q One of the authors of that is a cohort of
7 yours at Johns Hopkins, Ellen Silbergeld?

8 A Yes, she's with John Hopkins.

9 Q Do you know, doctor, that her conclusions were
10 proven to be off by a factor of maybe a thousand?

01:34PM

11 A I do not, and I doubt that that has been
12 demonstrated.

13 Q Well, if I could demonstrate that to you
14 during the hearing, will you --

15 A I'd be interested in knowing the source of
16 that statement.

01:34PM

17 Q So those are the only two on the first page
18 that have to do with this issue; correct?

19 A That's correct.

20 Q What am I looking at on the second page that
21 have to do with this issue?

01:34PM

22 A I don't see any on the second page.

23 Q Just to recap what I think we've established,
24 Doctor, you have available to you no studies or
25 investigations which indicate that resistant

01:35PM

1 bacteria are developing within the IRW as a result
2 of antimicrobials being used in chicken feed?

3 A I haven't seen any such studies.

4 Q Doctor, in offering your opinion that there
5 should be a moratorium on the use of chicken litter
6 in the Illinois River watershed, have you taken into
7 consideration the economic disruption to people who
8 utilize chicken litter?

01:35PM

9 A I have done so in a risk-risk tradeoff
10 assessment. My responsibility as a public health
11 professional is to look first at the health
12 implications of risk factors.

01:35PM

13 Q So what are the tradeoffs?

14 A We might have to pay a little bit more for our
15 chicken if the waste were properly handled.

01:36PM

16 Q Have you looked at the impact on the grower
17 community and the impact on cattle farmers?

18 A I have not. I have seen data on economic
19 analyses of what it would take to return to a
20 sustainable form of agriculture.

01:36PM

21 Q That's the one where we reduce our meat
22 consumption from 65 percent of our diet to 5 percent
23 of our diet?

24 A No. It's where the cost to the consumer
25 captures more of the externalized costs.

01:36PM

1 acted prudently?

2 A I have no reason to believe that.

3 Q As part of your discussions with Teaf and
4 Fisher and Harwood, has anyone ever allocated to you
5 or provided some allocation in terms of percentage 03:26PM
6 of the bacteria that is found in water sampling in
7 the Illinois River watershed in terms of source, X
8 amount is attributable to poultry, X amount to
9 cattle; no one --

10 A No. 03:26PM

11 Q -- has given you any information that
12 allocates percentage to source?

13 A No.

14 Q Do you agree with me that there's more than
15 one source of bacteria in the waters of the Illinois 03:27PM
16 River watershed?

17 A Yes. We've talked about other sources.

18 Q Have you personally taken any steps to provide
19 your opinions or your thoughts on the issues in your
20 affidavit to the Oklahoma State Department of 03:27PM
21 Health?

22 A I have not.

23 Q What about any other state agencies in
24 Oklahoma?

25 A None. 03:27PM

1 abrasions. So the typical route of entry is by the
2 fecal-oral route, meaning feces of the animal going
3 into the oral cavity of the human, but there are
4 other methods of exposure.

5 Q In terms of GI symptoms and problems --

03:32PM

6 A No. Gastroenterological disorders are almost
7 exclusively fecal-oral.

8 Q And not dermal contact?

9 A Not dermal unless, and this would be a rather
10 unusual case, but you can have an infection of the
11 skin that becomes sufficiently serious that it
12 penetrates subcutaneous tissues, becomes blood
13 borne, and the condition will cause septicemia, and
14 there are people with septicemia who then develop
15 the gastrointestinal equivalent of the offending
16 organism.

03:32PM

17 Q But you're not providing opinions about that
18 as part of your work in this case; correct?

19 A No.

20 Q Correct?

03:33PM

21 A That is correct.

22 Q Okay. What are the other sources of
23 Salmonella other than poultry?

24 A Other food animals, dairy cattle, beef cattle,
25 swine.

03:33PM

1 Q Do you know what the general frequency is of
2 Salmonella per 100,000 in the U.S.?

3 A No, I don't.

4 Q Do you know what the U.S. EPA standard is for
5 body contact, primary body contact in terms of
6 colonies per 100 milliliters for Salmonella?

03:33PM

7 A I don't think -- I don't know. I think the
8 EPA uses, as we talked earlier, Enterococci and E.
9 coli as more valuable predictors of water quality.

10 Q As indicated bacteria?

03:34PM

11 A Yeah, as indicated bacteria.

12 Q What are the sources of Campylobacter other
13 than poultry?

14 A I'm not certain. It's not a common problem
15 with cattle, swine. I've always associated over the
16 last six or eight years since I've gotten involved
17 in these issues predominantly a poultry problem.

03:34PM

18 Q As you sit here, you're not aware of any other
19 sources of Campylobacter other than poultry?

20 A I think -- I would be surprised if you
21 couldn't find some Campylobacter in cattle and
22 swine, but it's certainly not a prominent part of
23 the public health problem associated with that
24 particular bacteria.

03:34PM

25 Q Have you ever done any work in Oklahoma other

03:35PM

1 than this litigation?

2 A No.

3 Q Do you know what the frequency of
4 Campylobacter is per 100,000?

5 A I do not. I've seen bar graphs that suggest 03:35PM
6 that statewide reported, again with all the
7 qualifications of what underreporting probably goes
8 on, that suggests that 10 per hundred thousand seems
9 to be -- 10 to 15 per hundred thousand is what
10 Exhibit L7 would suggest. 03:35PM

11 Q You may have covered this this morning but
12 I'll ask again. Do you know what the sources of E.
13 coli 0157 are?

14 A We did cover that, and it's present in food
15 animals of broad range, poultry, swine, cattle, 03:36PM
16 dairy cattle. It has been a -- as a public health
17 threat, it's been a particular problem associated
18 with large feed lot, corn-finished beef. It changes
19 the pH of the interior of the digestive tract and
20 actually creates an environment that is favorable 03:36PM
21 for the overgrowth and predominance of E. coli 0157.

22 Q Other than E. coli 0157, are there any other
23 E. coli strains that are pathogens?

24 A Yes.

25 Q What are those? 03:36PM

1 A A broad number of E. coli species. The reason
2 0157 has become so prominent is that it's associated
3 with the hemolytic uremic syndrome, a potentially
4 fatal complication of infection, and there have been
5 reported deaths linked back to undercooked hamburger
6 meat, for example, but the other E. coli species are
7 common sources of gastrointestinal disease.

03:37PM

8 Q All of them?

9 A Not all of them but many.

10 Q How many total strains of E. coli are there?

03:37PM

11 A I don't know.

12 Q Do you know what the sources are for fecal
13 coliform?

14 A Well, fecal coliforms are a broad category of
15 gram positive rod-shaped organisms, and as I
16 mentioned this morning, some of them have nothing to
17 do with warm-blooded mammalian species. You can
18 find Klebsiella, a fecal coliform, in the effluent
19 of a water pulp -- of a paper pulp mill, and that's
20 in part why the EPA has moved away from fecal
21 coliforms to E. coli and Enterococci as a much more
22 reliable indicator bacteria for human disease.

03:37PM

23 Q Do you know what the sources are for
24 Enterococci?

25 A Enterococci are common in warm-blooded

03:38PM

03:38PM

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1 animals.

2 Q Okay. Are you aware of any evidence of
3 Salmonella in the waters of the Illinois River
4 watershed?

5 A I'm not.

03:38PM

6 Q Same question as to Enterococci?

7 A Yes. The Enterococci, we have data from --
8 from my L1, we have the Illinois River watershed
9 bacterial synopsis that shows the number of positive
10 samples for Enterococci.

03:39PM

11 Q Are you aware of any evidence of Campylobacter
12 in waters of the Illinois River watershed?

13 A No.

14 Q Is there any evidence of E. coli 0157 in
15 waters of the Illinois River watershed?

03:39PM

16 A They have not been recovered to my knowledge
17 in the typical water sampling methods.

18 Q So as you sit here today, you're not aware of
19 any E. coli 0157?

20 A These E. coli here are not characterized, but
21 I assume that they've been typed, but I don't know
22 that. This could capture, for example, the Illinois
23 River near Tahlequah. Is that how you pronounce it?

24 Q Tahlequah.

25 A Tahlequah. Has a geometric mean finding of

03:40PM

Page 167

1 155 from the period 6-7-07 to 7-6-07, and without
2 further details, I couldn't rule out that some of
3 these weren't E. coli 0157.

4 Q But you don't know as you sit there?

5 A I don't know.

03:40PM

6 Q Do you agree with me that there's been no
7 illness outbreak in Oklahoma due to bacteria in the
8 Illinois River watershed?

9 A I don't agree. There's been no reported
10 illness outbreak.

03:40PM

11 Q Okay. Is it your uncle that had a poultry
12 farm in New York?

13 A Yes.

14 Q Other than your uncle's poultry farm, have you
15 ever been on a poultry farm?

03:41PM

16 A Yes.

17 Q Where?

18 A Several in the eastern shore of Maryland.

19 Q How long ago?

20 A Starting about five years ago, and the most
21 recent visit was about two years ago.

03:41PM

22 Q What was the nature of that those visits; why
23 were you visiting poultry houses on the eastern
24 shore?

25 A To observe firsthand the conditions that I was

03:41PM

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1 hearing about from my graduate students and
2 colleagues. The Center For the Livable Future has
3 an innovation grant program, and we have certain
4 criteria of matters of interest that need to be
5 satisfied in order for students and faculty to
6 qualify for these innovation grants, and we were
7 seeing an increasing number of proposals related to
8 the poultry industry in the Delmarva Peninsula, and
9 I thought it was time for me to have some firsthand
10 knowledge and exposure to what they were describing
11 in their grant applications.

03:42PM

12 Q Okay. As part of your work for the attorney
13 general in this case, did you request to visit any
14 poultry farms in the Illinois River watershed?

03:42PM

15 A I have not.

03:42PM

16 Q As part of your work in this case for the
17 attorney general, did request to visit any poultry
18 land application sites in the Illinois River
19 watershed?

20 A I have not.

03:42PM

21 Q Did you actually work for the CDC?

22 A I did.

23 Q You did? What was your title for the CDC?

24 A I was an assistant surgeon in the U. S. Public
25 Health Service, commissioned officer, and the CDC

03:43PM

1 uses the Navy rank, so I was the equivalent of a
2 lieutenant commander.

3 Q How long did you work for the CDC?

4 A Three years.

5 Q What were the time frames?

03:43PM

6 A 1966 to 1969.

7 Q Are you familiar with the CDC EPA council of
8 state and territorial epidemiologists surveillance
9 system called the water-borne disease and outbreak
10 surveillance system?

03:44PM

11 A Yes.

12 Q How so?

13 A For the last 13 years, I have served as an
14 advisor to the CDC's task force on community
15 preventive services, and I've made probably 20 trips
16 to Atlanta during that period. A number of people
17 that I have worked with in the Public Health Service
18 are either still active with the CDC or participate
19 in other advisory boards. So I'm familiar, not in
20 depth, with a number of different CDC activities.

03:44PM

21 Q Are you familiar with that particular CDC
22 activity, and I'm talking about the water-borne
23 disease outbreak surveillance system?

24 A Yes.

25 Q How so; have you done work with it?

03:45PM